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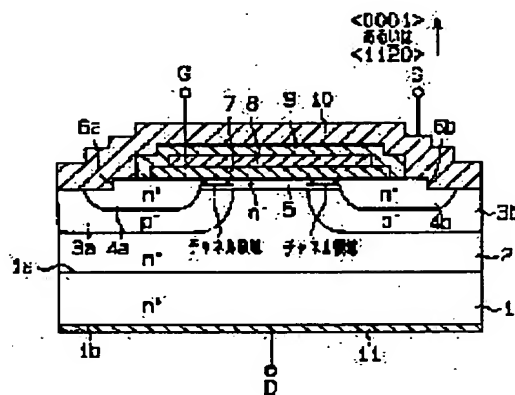
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**(54) SILICON CARBIDE SEMICONDUCTOR DEVICE AND ITS MANUFACTURE**

(57)Abstract:

**PROBLEM TO BE SOLVED:** To provide a silicon carbide semiconductor device which can improve ON-resistance by improving channel mobility.

**SOLUTION:** An n<sup>+</sup>-type silicon carbide epitaxial layer 2 is formed on a main surface of an n<sup>+</sup>-type silicon carbide semiconductor board 1, p-type silicon carbide base regions 3a, 3b with a specified depth are formed in a specified region of a surface layer of the n<sup>+</sup>-type silicon carbide epitaxial layer 2, and n<sup>+</sup>-type source regions 4a, 4b are formed in a specified region of a surface layer of the base regions 3a, 3b. A surface channel epitaxial layer 5 is arranged to connect the source regions 4a, 4b and the n<sup>+</sup>-type silicon carbide epitaxial layer 2 in a surface layer of the base regions 3a, 3b. A gate electrode 8 is formed in a surface of the surface channel epitaxial layer 5 through a gate insulation film 7. A source electrode 10 is formed to come into contact with the base regions 3a, 3b and the source regions 4a, 4b, and a drain electrode 11 is formed in a rear of the board 1.

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